Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Please cancel claims 101, 102, 104, 111, 113, 114, 118, 120 and 121 without prejudice or disclaimer.

Claims 1 to 96 (cancelled).

97. (currently amended) A method for determining ~~the~~ an omi haplotype of a human BRCA1 gene comprising:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer, ~~and~~

(b) comparing the determined nucleotide sequence from said female individual to SEQ ID NO: 263, and

(c) determining the presence of the following nucleotide variations: thymine at nucleotides 2201 and 2731, cytosine at nucleotides 2430 and 4427, and guanine at nucleotides 3232, 3667 and 4956, wherein the presence of the nucleotide variations ~~at least one variation~~ in the determined nucleotide sequence indicates the omi1 haplotype.

98. (previously presented) The method of claim 97 further comprising repeating steps (a) and (b).

99. (currently amended) The method of claim 97 wherein ~~the~~ at least one nucleotide variation is located in an exon coding region of the BRCA1 gene.

100. (currently amended) The method of claim 99 wherein ~~the~~ at least one nucleotide variation encodes an amino acid variation in the protein encoded by the BRCA1 gene.

101. (cancelled)

102. (cancelled).

103. (previously presented) The method of claim 97 wherein the BRCA1 gene or fragment thereof is amplified prior to nucleotide sequencing.

104. (cancelled).

105. (previously presented) The method of claim 97 further comprising comparing the determined nucleotide sequence to SEQ ID NO: 265.

106. (previously presented) The method of claim 97 further comprising comparing the determined nucleotide sequence to SEQ ID NO: 267.

107. (previously presented) The method of claim 97 further comprising determining the putative amino acid sequence of the protein encoded by the BRCA1 gene.

108. (previously presented) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 264.

109. (previously presented) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 266.

110. (previously presented) The method of claim 107 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 268.

111. (cancelled)

112. (currently amended) The method of claim 97 wherein the nucleotide sequence or fragment thereof of the BRCA1 gene is determined in at least five <u>female</u> individuals with a ~~genetic~~ <u>family</u> history which indicates a predisposition to breast cancer.

113. (cancelled)

114. (cancelled)

115. (currently amended) A method for determining ~~the~~ an omi haplotype of a human BRCA1 gene comprising:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer,

(b) determining the putative amino acid sequence of the protein or fragment thereof encoded by the BRCA1 gene from the determined nucleotide sequence, ~~and~~

(c) comparing the ~~determined~~ putative amino acid sequence from said human to SEQ ID NO: 264, and

(d) determining the presence of the following amino acid variations: proline at position 871, glutamate at residue 1038, lysine at residue 1183 and serine at residue 1613 wherein the presence of ~~at least one variation~~ the variations in the determined amino acid sequence indicates the presence of the omi1 haplotype.

116. (previously presented) The method of claim 115 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 266.

117. (previously presented) The method of claim 115 further comprising comparing the determined putative amino acid sequence to SEQ ID NO: 268.

118. (cancelled)

119. (currently amended) The method of claim 115 wherein the putative amino acid sequence or fragment thereof of the protein encoded by the BRCA1 gene is determined in at least five female individuals with a ~~genetic~~ family history which indicates a predisposition to breast cancer.

120. (cancelled)

121. (cancelled)

122. (currently amended) A method for determining ~~the~~ an omi haplotype of a human BRCA1 gene consisting essentially of:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer, ~~and~~

(b) comparing the determined nucleotide sequence from said female individual to SEQ ID NO: 263, and

(c) determining the presence of the following nucleotide variations: thymine at nucleotides 2201 and 2731, cytosine at nucleotides 2430 and 4427, and guanine at nucleotides 3232, 3667 and 4956, wherein the presence of the nucleotide variations ~~at least one variation~~ in the determined nucleotide sequence indicates the omi1 haplotype.

123. (currently amended) A method for determining ~~the~~ an omi haplotype of a human BRCA1 gene consisting essentially of:

(a) determining the nucleotide sequence of the BRCA1 gene or fragment thereof from at least one female individual with a family history which indicates a predisposition to breast cancer,

(b) determining the putative amino acid sequence of the protein or fragment thereof encoded by the BRCA1 gene from the determined nucleotide sequence, ~~and~~

(c) comparing the ~~determined~~ putative amino acid sequence from said human to SEQ ID NO: 264, and

(d) determining the presence of the following amino acid variations: proline at position 871, glutamate at residue 1038, lysine at residue 1183 and serine at residue 1613 wherein the presence of ~~at least one variation~~ the variations in the determined amino acid sequence indicates the presence of the omi1 haplotype.

124. (currently amended) The method according to any of claims 97, 115, 122 or 123 wherein the determined omi1 haplotype of the human BRCA1 gene is not associated with a predisposition to developing breast cancer.